

Introduction

Concepts

The **FITSH** software package provides a set of independent binary programs (called Tasks) that are designed for execution from a UNIX command line shell or shell script. Each of these tasks performs a specific operation, following the UNIX philosophy ^[1] of modular tools that performs a single step related to astronomical data reduction and image processing. Such steps include, for instance:

- search and identify stars or other point-like sources;
- performing various transformations and cross matching of lists of (astronomical) sources;
- transforming an image to another reference frame;
- performing instrumental photometry;
- transform and convert a FITS image to a popular graphics format;
- performing regression analysis and data modelling;
- etc.

The details of a certain operation are specified via command switches and arguments. Therefore this package does not need any higher level operating environment than a standard UNIX shell, however, processing the related data might require a little more knowledge of the used shell itself (the related documentation and examples found in this page use the bash shell). Additionally, some of the processing steps might require minor or basic operations performed with other tools like awk or text processing utilities (sort, uniq, paste, ...). For a summary about the individual tasks, check the Tasks section of this page.

Data structures

- The tasks and utilities found in the **FITSH** package processes astronomical images that should be available in FITS format.
- Any other data (object lists, descriptive files, ...) are manipulated as simple ASCII text files, so independent software environments and data processing languages can easily process the outcome of these utilities.

In other words, non-imaging data are not stored in specific FITS extensions (textual or binary tables), instead, simple text files are supported both as an input and output.

References

[1] https://en.wikipedia.org/wiki/Unix_philosophy
